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Jung Tae Kang

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EXAMINER

NGUYEN, JIMMY H

ART UNIT

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10/30/2008

PAPER

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Office Action Summary	Application No. 10/764,509	Applicant(s) KANG ET AL.	
	Examiner JIMMY H. NGUYEN	Art Unit 2629	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 01 August 2008.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 18-23,25-31 and 33-46 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 18-23,25-31 and 33-46 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All b) ☐ Some * c) ☐ None of:
- ☐ Certified copies of the priority documents have been received.
 - ☒ Certified copies of the priority documents have been received in Application No. 09/621,825.
 - ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|--|---|
| 1) <input type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413) |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | Paper No(s)/Mail Date. _____ |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08) | 5) <input type="checkbox"/> Notice of Informal Patent Application |
| Paper No(s)/Mail Date _____ | 6) <input type="checkbox"/> Other: _____ |

DETAILED ACTION

1. A request for continued examination under 37 CFR 1.114, including the fee set forth in 37 CFR 1.17(e), was filed in this application after final rejection. Since this application is eligible for continued examination under 37 CFR 1.114, and the fee set forth in 37 CFR 1.17(e) has been timely paid, the finality of the previous Office action has been withdrawn pursuant to 37 CFR 1.114. Applicant's submission filed on 8/1/2008 has been entered. Claims 18-23, 25-31 and 33-46 are currently pending in the application. An action follows below:

Claim Rejections - 35 USC § 112

2. The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

3. Claims 25-26 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

As to claim 25, this claim recites a feature, "the display" in line 1. Since it is not clear whether "the display" corresponds to "the display device" or "the display panel" (see claim 18, line 2, it is considered that the invention is not clearly defined.

As to claim 26, since this claim depends upon claim 25, this claim is therefore rejected for the same reason set forth in claim 25 above.

4. The following is a quotation of the first paragraph of 35 U.S.C. 112:

The specification shall contain a written description of the invention, and of the manner and process of making and using it, in such full, clear, concise, and exact terms as to enable any person skilled in the art to which it pertains, or with which it is most nearly connected, to make and use the same and shall set forth the best mode contemplated by the inventor of carrying out his invention.

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5. Claims 25-26 are rejected under 35 U.S.C. 112, first paragraph, as failing to comply with the written description requirement. The claim(s) contains subject matter which was not described in the specification in such a way as to reasonably convey to one skilled in the relevant art that the inventor(s), at the time the application was filed, had possession of the claimed invention.

As to claim 25, this claim contains the limitation, “wherein the source drivers and gate drivers are all disposed on the second PCB” in lines 2-3, which was not described in the specification in such a way as to reasonably convey to one skilled in the relevant art that the inventor(s), at the time the application was filed, had possession of the claimed invention. As best understood, the original disclosure, specifically Figure 13 corresponding to the elected species III, discloses source drivers (or data drivers 364; Fig. 2) disposed all the TCPs 831 and gate drivers (or gate driving ICs; Fig. 2) disposed on another TCPs (see Fig. 2). Accordingly, the original disclosure does not contain such description and details regarding to the above underlined limitation of claim 25, so as to reasonably convey to one skilled in the relevant art that the inventor(s), at the time the application was filed, had possession of the claimed invention.

As to claim 26, since this claim depends upon claim 25, this claim is therefore rejected for the same reason set forth in claim 25 above.

Claim Rejections - 35 USC § 102

6. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

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(e) the invention was described in (1) an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent or (2) a patent granted on an application for patent by another filed in the United States before the invention by the applicant for patent, except that an international application filed under the treaty defined in section 351(a) shall have the effects for purposes of this subsection of an application filed in the United States only if the international application designated the United States and was published under Article 21(2) of such treaty in the English language.

7. Claims **18-23, 25-29, 41, and 43** are rejected under 35 U.S.C. 102(e) as anticipated by or, in the alternative, under 35 U.S.C. 103(a) as obvious over Murai (US 5,986,726).

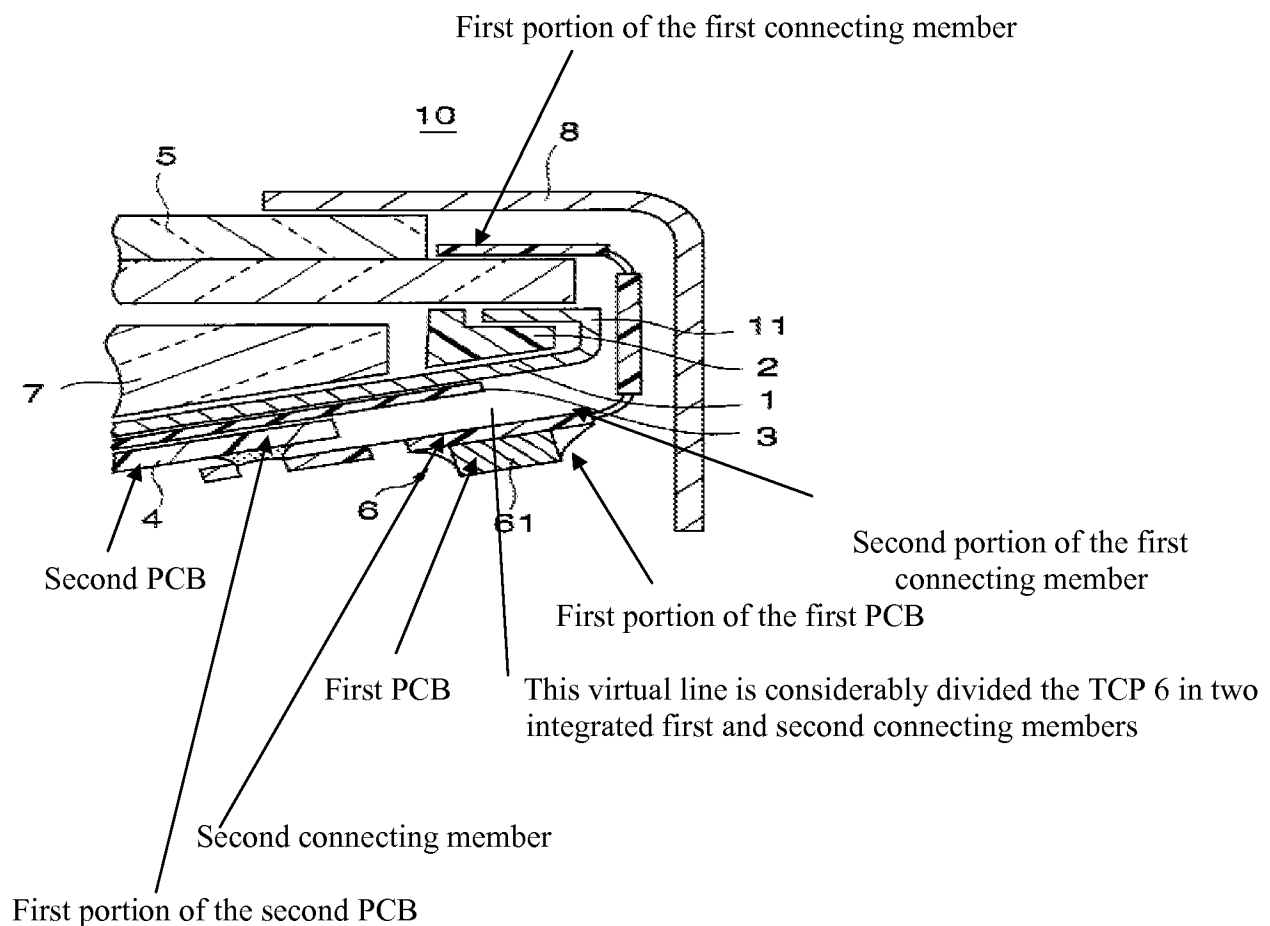
As to **claim 18**, the claimed invention may be read in the Murai as follows: Murai discloses a display device (a flat panel display device 10; Fig. 1; col. 3, line 43) comprising:

- a display panel (a display panel 5; Fig. 1; col. 4, line 5) displaying an image;
- a mold frame (elements 1, 2; Fig. 1) having opposite front and rear planes (Fig. 1 shows a driver circuit 4 attached to the rear plane of mold frame (1, 2)), the display panel (5) being disposed in front of the front plane thereof (Fig. 1);
- a first connecting member (a first portion of the TCP 6, which considerably includes two integrated first and second portions; see the below annotated Fig. 1) attached to a first portion of a front plane of the display panel (5) (Fig. 1);
- a first printed circuit board (a circuit board having a driver IC 61 disposed thereon; Fig. 1) comprising a source PCB (61) closely attached to the rear plane of the mold frame (1, 2) and electrically coupled to the display panel (5) through the first connecting member, the first connecting member being attached to a first portion of the first PCB (see the below annotated Fig. 1), the first connecting member partially overlapping with the first PCB (see the below annotated Fig. 1); and,
- a second PCB (a driver circuit board 4; Fig. 1) comprising a driving circuit PCB (4) closely attached to the rear plane of the mold frame (1, 2) and having a first portion electrically connected to the first PCB without using a separate connecting member (the below annotated

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Fig. 1 shows a first portion of a second PCB connected to the first PCB via a second portion of the TCP 6, which is **NOT** separate from the first portion of the TCP 6, i.e., a second portion of the TCP 6 does not correspond to the claimed “separate connecting member”).

Accordingly, all limitations of this claim are read in the Murai reference.



Annotated Figure 1

As to **claim 19**, Murai discloses the first connecting member being attached to a first edge of the display panel (see Fig. 1).

As to **claim 20**, Murai discloses the first connecting member comprising a tape carrier package (TCP) (Fig. 1; col. 3, line 66).

As to **claim 21**, Murai discloses the TCP comprising a driver integrated circuit (col. 3, lines 66-67).

As to **claim 22**, Murai discloses the first PCB consisting exclusively of a wiring pattern for signal transmission (col. 3, line 66 through col. 4, line 4).

As to **claim 23**, Murai discloses the first connecting member being attached to a first edge of the source PCB (61) and the second PCB (4) being attached to a second edge of the source PCB (61) (Fig. 1).

As to **claim 25**, Murai discloses the display device including a plurality of source drivers and gate drivers, and wherein the source drivers (6/61) and gate drivers (6/61) all disposed on the second PCB (Figs 1-2).

As to **claim 26**, Murai discloses the second PCB (4) generating a timing signal for the display panel (5) (col. 3, line 66 through col. 4, line 3).

As to **claim 27**, Murai discloses a third connecting member (TCP 6 being attached to the shorter side of the display panel 5; see Fig. 2) attached to a second portion (the shorter side) of the display panel (5) (Fig. 2).

As to **claim 28**, Murai discloses the third connecting member (TCP 6) comprising a tape carrier package (TCP) (Fig. 2; col. 4, line 3).

As to **claim 29**, Murai discloses the TCP (6) comprising a driving integrated circuit (IC) (Fig. 2; col. 3, lines 66-67).

As to **claim 41**, Murai discloses a front chassis (a metal bezel 8; Fig. 1) coupled to a front of the mold frame (1,2), the front chassis (8) and mold frame (1,2) defining an enclosure within which the display panel (5) is enclosed (Fig. 1), the front chassis having a rectangular opening therein through which a front surface of the display panel is visible.

As to **claim 43**, Murai discloses a backlight assembly (elements 7, 71, 81; Fig. 2) interposed between the front plane of the mold frame (1,2) and the display panel (5) (Figs. 1-2; col. 4, lines 10-12).

Claim Rejections - 35 USC § 103

8. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

9. **Claims 30-31** are rejected under 35 U.S.C. 103(a) as being unpatentable over Murai, as applied to claim 27 above, and further in view of Takahashi et al. (US 5,889,572), hereinafter Takahashi.

As to **claims 30-31**, as discussed in the rejection to claim 27 above, Murai discloses all limitation of these claims except that Murai does not explicitly disclose a third (gate) PCB electrically connected to the display panel through the third connecting member.

However, Takahashi discloses a related display device comprising a gate driver circuitry implemented by a separate gate PCB (610), which is attached to a left portion of the display

panel (100) through tape carrier packages (TCP) (see Fig. 3, col. 2, lines 34-38). Takahashi further teaches the TCPs including driving ICs (250) (see Figs. 2-3, col. 2, lines 34-38) so as to interconnect the driving ICs and to reduce the width of the display (see col. 4, lines 11-21). Therefore, it would have been obvious to a person of ordinary skill in the art at the time of the invention was made to provide a gate PCB in the display device of Murai, in view of the teaching in the Takahashi reference, because this would interconnect all the driving ICs while reducing the so-called frame area of the display device, as taught by Takahashi (see the Summary of the Invention; col. 4, lines 11-21).

10. **Claims 33-40, 44 and 46** are rejected under 35 U.S.C. 103(a) as being unpatentable over Murai as applied to claim 18 above, and further in view of Furuhashi et al. (US 5,909,205), hereinafter Furuhashi.

As to **claim 33**, Murai further teaches the driving circuit board (104/4) (or the claimed second PCB) receiving a video image from an external source (see col. 1, lines 6-10 and lines 50-67). Murai does not explicitly teach the video image, received from an external source, being an analog image, thereby failing to teach a signal converting unit for converting an externally provided analog video signal into a digital video signal and to provide the converted signal to the second PCB. Accordingly, Murai discloses all limitations of this claim except for a signal converting unit as presently recited in this claim.

However, Furuhashi discloses a related display device comprising a signal converting unit (an A/D converter 104; Fig. 1) receiving analog video signal (102) externally provided by the computer, into a digital video signal and electrically connected to the display driving circuitry (a circuit including elements 109-111, 118, 120; Fig. 1) through a second connecting

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member (a connection for providing a digital video signal 105 to elements 109 and 110; Fig. 1) to provide the converted signal to the display driving circuit (109-111, 118, 120) (see col. 7, lines 1-22 and col. 8, lines 7-12). Therefore, it would have been obvious to a person of ordinary skill in the art at the time of the invention was made to provide an A/D converter electrically connected with the display driving circuit board (or the claimed second PCB) in the display device of Murai, in view of the teaching in the Furuhashi reference, because this would allow the display device of Murai capable of receiving an analog video signal from an external source such as a computer, as generally known by a person of ordinary skill in the art.

As to **claim 34**, Murai explicitly teaches the second PCB (4) closely attached to the rear plane of the mold frame (1, 2) through a recurvate bending of the first connecting member (Fig. 1) and Furuhashi teaches the signal converting unit (104) electrically connected to the display driving circuitry (the claimed second PCB) as discussed above. In other words, Murai in view of Furuhashi discloses all limitations of this claim except for the signal converting unit closely attached to the rear plane of the mold frame, as presently claimed.

However, while neither Furuhashi nor Murai disclose the particular location of the signal converting unit as presently claimed, since Furuhashi teaches the signal converting unit (104) disposed in the display device and electrically connected to the display driving circuitry (the claimed second PCB), one of ordinary skill in the art would have found it obvious to dispose the signal converting unit nearby or on the display driving board (the claimed second board), thereby rendering the signal converting unit closely attached to the rear plane of the mold frame, as presently claimed. Further, a change in location is generally recognized as being within the level of ordinary skill in the art, see **In re Japikse, 86 USPQ 70 (CCPA 1950)**. Therefore, it would

have been obvious to a person of ordinary skill in this art to dispose the signal converting unit as presently claimed as desired to obtain the invention as specified in claim above.

As to **claims 35 and 36**, Murai in view of Furuhashi discloses the third connecting member for connecting between the signal converting unit and the second PCB (see the discussion to claim 33 above). Neither Furuhashi nor Murai expressly teach the third connecting member comprising an upper socket and lower socket, as presently recited in claim 35, or a biting connector, as presently recited in claim 36. However, Official Notice is taken that both the concept and the advantages of utilizing a connecting member comprising an upper socket and lower socket, or a biting connector, as presently claimed, are well known and expected in the art. It would have been obvious to a person of ordinary skill in the art at the time of the invention was made to replace the third connecting member of Baek with the known connecting member, which comprises either an upper socket and lower socket or a biting connector, because it would allow the signal converting unit easily separated from the second PCB without any special tool, as known by a person of ordinary skill in the art.

As to **claims 37 and 38**, since these claims recite limitations similar to those of claim 33 above, see the rejection to claim 33 above. Claim 37 further recites "a second connecting member attached to a second portion of the first PCB; a second PCB electrically connected to the first PCB through the second connecting member; and the second connecting member attached to a first portion of the second PCB" in lines 7-9. As discussed in the rejection to claim 18, Murai's TCP 6 considerably includes two integrated first (right) and second (left) portions, the first (right) portion of the TCP 6 corresponding to the claimed first connecting member of claim 37 and the second (left) portion corresponding to the claimed second connecting member of

claim 37 (see the above annotated Fig. 1). Further, as shown in the annotated Fig. 1 above, Murai discloses a second connecting member (the second/left portion of the TCP 6) attached to a second portion of the first PCB (61); a second PCB (4) electrically connected to the first PCB (61) through the second connecting member (the second/left portion of the TCP 6); and the second connecting member (the second/left portion of the TCP 6) attached to a first portion of the second PCB (4). See the above annotated Fig. 1.

As to **claim 39**, see the rejection to claim 35 above.

As to **claim 40**, see the rejection to claim 36 above.

As to **claim 44**, see the rejection to claim 41 above.

As to **claim 46**, see the rejection to claim 43 above.

11. **Claim 42** is rejected under 35 U.S.C. 103(a) as being unpatentable over Murai as applied to claim 41 above, and further in view of Yun et al. (US 5,835,139), hereinafter Yun.

As to **claim 42**, Murai further teaches the display device used for notebook personal computers or portable television (see col. 1, lines 6-10), but does not expressly disclose the display device comprising opposing front and rear cases as presently claimed.

However, Yun discloses a related display device (a LCD device as shown in Fig. 7) used in a portable personal computer (see Fig. 9), comprising a front case (520) and a rear case (500) coupled to each other to define an enclosure within which the display device (700) is enclosed (col. 4, lines 55-58), the front case (520) having a opening therein corresponding to the rectangular opening of the front chassis (400) (see Figs. 6-7). It would have been obvious to a person of ordinary skill in the art at the time of the invention was made to utilize the front and rear cases to enclose the display device of Murai, in view of the teaching in the Yun reference,

because this would securely protect the display device in the front and rear cases and allow the user to rotate the display device used in the portable device, such as a portable computer, by rotating means of the front and rear cases (see Fig. 9).

12. **Claim 45** is rejected under 35 U.S.C. 103(a) as being unpatentable over Murai in view of Furuhashi as applied to claim 44 above, and further in view of Yun.

As to **claim 45**, see the rejection to claim 42 above.

Response to Arguments

13. Applicant has amended claims 18 and 37 to include a limitation, “the first connecting member partially overlapping with the first PCB” and argued that Murai does not teach this feature (see the amendment, page 7, last paragraph. Examiner disagrees because as discussed in the detailed rejection above, the element 6 considerably includes two integrated connecting members, the first (right) connecting member of the element 6 attached to the first PCB 61 and partially overlapping with the first PCB 61 (see the above annotated Fig. 1). Applicant further argued that Murai discloses the element 4 connected to the element 61 using a separate connecting member (the element 6). Examiner disagrees because as discussed above, although Murai discloses the element 4 connected to the element 61 using a (second/left) connecting member of the element 6; however, a (second/left) connecting member of the element 6 is NOT separate from the first (right) portion of the element 6. Furthermore, there is no where in the Murai to disclose that the element 6 can be separated from the element 4 or element 61 (e.g., elements 4, 6, 61 may be all soldered together).

Further, Applicant argues that Murai does not teach “a second connecting member different from the first connecting”, as claimed in claim 37 (see page 8 of the amendment).

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Examiner disagrees because as discussed in the rejection to claim 37 above, Murai's TCP 6 considerably includes two integrated first (right) and second (left) portions, the first (right) portion of the TCP 6 corresponding to the claimed first connecting member of claim 37 and the second (left) portion corresponding to the claimed second connecting member of claim 37 (see the above annotated Fig. 1).

Conclusion

14. Any inquiry concerning this communication or earlier communications from the examiner should be directed to JIMMY H. NGUYEN whose telephone number is (571)272-7675. The examiner can normally be reached on Monday - Friday, 6:30 a.m. - 3:00 p.m..

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Bipin Shalwala can be reached at 571-272-7681. The fax phone number for the organization where this application or proceeding is assigned is (571) 273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

/Jimmy H Nguyen/

Primary Examiner, Art Unit 2629